



**NASA-KSC/EX-E High Education
Internship Project & Abstract Form**

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Full name (First MI Last)	Robert J Dooling
Academic Institution	Rochester Institute of Technology
City, State Zip Code	Omaha, NE 68114
Program Hired Under (Funding Source)	ACCESS (Achieving Competence in Computing, Engineering, and Space Science)
Name of Branch or Division	NEA20 (Guidance, Navigation, & Flight Control)
Desk Location (Bldg Name, Cube #)	OSB II, 3113-B
Work Phone (If Applicable)	
Cellular Phone	
Degree of Study (i.e. MBA, BS in Electrical Engineering, etc) Major & Minors	BS in Computer Science Minor in Writing Studies
Expected Graduation (Month/ Year)	May 2014
Project Title	Orion Script Generator
Project / Abstract Summary (Approximately 300 words) One complete paragraph in itself (not an introduction) It should indicate subjects while also stating objectives of the project Newly observed facts and conclusions of project discussed must be stated in summary form Readers should be able to understand your project and what you completed in your abstract NASA Engineering's Orion Script Generator (OSG) is a program designed to run on Exploration Flight Test One Software The script generator creates a SuperScript file that, when run, accepts the filename for a listing of Compact Unique Identifiers (CUIs) These CUIs will correspond to different variables on the Orion spacecraft, such as the temperature of a component X, the active or inactive status of another component Y, and so on OSG will use a linked database to retrieve the value for each CUI, such as "100 05," "True," and so on Finally, OSG writes SuperScript code to display each of these variables before outputting the ssi file that allows recipients to view a graphical representation of Orion Flight Test One's status through these variables This project's main challenge was creating flexible software that accepts and transfers many types of data, from Boolean (true or false) values to "Unsigned Long Long" values (any number from 0 to 18,446,744,073,709,551,615) We also needed to allow bit manipulation for each variable, requiring us to program functions that could convert any of the multiple types of data into binary code Throughout the project, we explored different methods to optimize the speed of working with the CUI database and long binary numbers For example, the program handled extended binary numbers much more efficiently when we stored them as collections of Boolean values (true or false representing 1 or 0) instead of as collections of character strings or numbers We also strove to make OSG as user-friendly and accommodating of different needs as possible Its default behavior is to display a current CUI's maximum value and minimum value with three to five intermediate values in between, all in descending order Fortunately, users can also add other input on the same lines as each CUI name to request different high values, low values, display options (ascending, sine, and so on), and interval sizes for generating intermediate values Developing input validation took up quite a bit of time, but OSG's flexibility in the end was worth it	
If you are writing a paper for school or specific internship program, provide the following	
Paper Title	Orion Script Generator
Mentor Name	Curtis D Williams
Mailcode	NEA20